## REMARKS

Claims 1-12 remain pending in the application.

### Claims 1-12 over Chen

In the Office Action, claims 1-12 were rejected under 35 U.S.C. §103(a) as allegedly being obvious over U.S. Patent No. 5,500,900 to Chen et al. ("Chen"). The Applicant respectfully traverses the rejection.

Claims 1-4 and 9-12 recite a system and method utilizing a plurality of regularizing models to respectively regularize a plurality of spatial characteristic functions and spatial characteristic sets prior to a respective combination with a plurality of Eigen filters to provide a plurality of head related transfer functions with varying degrees of smoothness.

The Examiner alleges that the recited language "for use" is not a positive structural limitation (see Office Action, page 2). The Applicant respectfully disagrees. If the Examiner continues to allege that "for use" is not a positive limitation, the Examiner is respectfully requested to provide support for such an allegation.

Chen discloses a single spline model for producing regularized spatial transformation characteristic functions (See col. 5, lines 21-28). A regularization parameter within an equation used to obtain the spline model is used to control the trade-off between smoothness and fidelity (See Chen, col. 5, lines 29-31).

Thus, Chen relies on a single regularizing model to produce regularized spatial transformation characteristic functions. Chen fails to disclose or suggest a system and method utilizing a plurality of regularizing models adapted to respectively regularize a plurality of spatial characteristic functions and spatial characteristic sets prior to a respective combination with a plurality of Eigen filters to provide a plurality of head related transfer functions with varying degrees of smoothness, as recited by claims 1-4 and 9-12.

The Examiner alleges that Chen at col. 5, lines 5-43 disclose STCF's that are obtained by fitting a spline function over azimuth and elevation variables to STCF samples (See Office Action, page 8). The Examiner further

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alleges that Chen's equations (5), (6) and (7) are computed based on a plurality of variables, with Chen's regularizing model providing a plurality of HRTF's with varying degrees of smoothness (See Office Action, page 8). The Applicants respectfully disagree.

Chen discloses, as the Examiner acknowledges, STCFs that are obtained by fitting a spline function (singular) fitted over azimuth and elevation variables to STCF samples. Moreover, the Examiner acknowledges that Chen discloses a regularizing model that provides a plurality of HRTF's (See Office Action, page 8). Thus, Chen discloses a **single** spline function, i.e., a regularizing model (singular) to produce regularized spatial transformation characteristic functions **NOT** a system and method utilizing a plurality of regularizing models to respectively regularize a plurality of spatial characteristic functions and spatial characteristic sets prior to a respective combination with a plurality of Eigen filters to provide a plurality of head related transfer functions with varying degrees of smoothness, as recited by claims 1-4 and 9-12.

Moreover, Chen discloses equations (5), (6) and (7) that rely on a $\lambda$ regularization parameter (See Chen, col. 5, line 27). The optimal value of the regularization parameter (singular) is determined by a method of generalization cross validation (See Chen, col. 5, lines 29-32). Thus, Chen discloses use of a **single** optimum $\lambda$ regularization parameter to formulate a **single** spline function **NOT** a plurality of regularizing models to respectively regularize a plurality of spatial characteristic functions and spatial characteristic sets, as recited by claims 1-4 and 9-12.

Moreover, the Examiner is arguing that Applicant's Fig. 2 is clearly met by Fig. 4 of Chen (See Office Action, page 8). However, it is the Applicant's claims that the Examiner is to review for patentability against the prior art **NOT** the Applicant's figures. Nevertheless, claims 1-4 and 9-12 are directed to, e.g, Applicant's Fig. 1 (the system and method performed by the system) and its accompanying text lacking a corresponding system and method in Chen, i.e., Chen fails to disclose or suggest a plurality of regularizing models to respectively regularize a plurality of spatial characteristic functions and spatial characteristic sets, as recited by claims 1-4 and 9-12.

Claims 5-8 recite a plurality of regularizing models adapted to respectively regularize a plurality of spatial characteristic functions prior to a respective combination with a plurality of Eigen filters.

As discussed above, Chen discloses a single spline model for producing regularized spatial transformation characteristic functions (See col. 5, lines 21-28). A regularization parameter (singular) within an equation used to obtain the spline model is used to control the trade-off between smoothness and fidelity (Chen, col. 5, lines 29-31).

Thus, Chen relies on a single regularizing model to produce regularized spatial transformation characteristic functions. Chen fails to disclose or suggest a system and method utilizing a plurality of regularizing models adapted to respectively regularize a plurality of spatial characteristic functions prior to a respective combination with a plurality of Eigen filters, as recited by claims 5-8.

A benefit of utilizing a plurality of regularizing models to provide a plurality of head related transfer functions with varying degrees of smoothness is, e.g., an ability to more accurately process a sound signal. Chen relies on a single spline model that must make a trade-off between smoothness and fidelity (col. 5, lines 29-31). Applicant's claimed features overcome the deficiency of having to make a trade-off between smoothness and fidelity by using a plurality of regularizing models to provide varying degrees of smoothness. Varying degrees of smoothness can be selectively applied to differing portions of a sound signal depending on the particular relevance to an overall sound signal being produced, more accurately modeling a three-dimensional sound.

Accordingly, for at least all the above reasons, claims 1-12 are patentable over the prior art of record. It is therefore respectfully requested that the rejection be withdrawn.

## Conclusion

All objections and rejections having been addressed, it is respectfully submitted that the subject application is in condition for allowance and a Notice to that effect is earnestly solicited.

Respectfully submitted,

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